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PATENT



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ORIGINALLY FILED Attorney Reference Number 6047-61247
Application Number 09/971,872

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Prindiville et al.

Application No. 09/971,872

Filed: October 4, 2001

For: SEMICONDUCTOR PACKAGES AND
METHODS FOR MAKING THE SAME

Examiner: Ishwarbhai H. Patel

Date: April 29, 2002

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Art Unit: 2827

CERTIFICATE OF MAILING

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REPLY TO OFFICE ACTION

This is a reply to a non-final Office Action mailed January 30, 2002. A reply is due by April 30, 2002. Reconsideration and withdrawal of the pending rejection is respectfully requested. A Letter to the Official Draftsperson submitting corrected drawings of FIGS. 1A, 1B, 3A and 3B accompanies this reply.

In the claims:

Please add the following claim:

36. (New) The substrate of claim 10, wherein the cover member covers from about 70% to about 98% of the opening formed by the wire bond slot.

37. (New) The substrate of claim 10, wherein the wire bond slot is associated with the defective pattern of conductors.

38. (New) The substrate of claim 23, wherein the wire bond slot is associated with the die attach area having defective electrical circuitry.

Remarks

The Office Action mailed January 30, 2002, has been reviewed and carefully considered. Claims 36-38 have been added to recite particular embodiments. Support for claim 36 is found in the specification at page 8, lines 15-20. Support for claims 37 and 38 is found in the specification at page 6, lines 25-29. Entry of claims 36-38 is respectfully requested. Upon entry of the new claims, claims 10-14, 23, and 36-38 will be pending.

Claims 10-14 and 23 stand rejected under §103 over Eng et al. combined with Heo et al., Kubota et al., and Vindasius et al. As recognized by the Examiner, Eng et al. does not teach a substrate that includes a cover member as recited in claims 10 and 23. The PTO's position is that it would have been obvious to modify the substrate to include the cover member since (1) circuit panels having defective patterns were known and (2) "it is known in the art to block or mask the area to protect it from the damage when another [sic] processes are carried out on the substrate, such as selective plating." Applicant understands that "the area" in the above-quoted sentence refers to defective pattern areas. Kubota et al. apparently is relied upon for showing such protective blocking or masking since selective plating is mentioned and Heo et al. is only concerned with marking defective patterns. It is respectfully submitted that the pending §103 should be reconsidered and withdrawn.

No combination of the cited references teaches a cover member that covers at least a portion of the wire bond slot (claim 10) or a majority of the opening formed by a wire bond slot (claim 23). The comments of the PTO in the Office Action focus on covering a defective pattern on the substrate with a cover member. However, according to claims 10 and 23 it is the wire bond slot that is covered. The substrate of Kubota et al. does not even include a wire bond slot, much less a cover member covering a wire bond slot.

Moreover, closer scrutiny of Kubota et al. reveals that this document does not, in fact, teach protective blocking or masking of a defective pattern of conductors (claim 10) or defective electrical circuitry (claim 23). Kubota et al. describes a method for blocking or masking portions of a lead frame that will not be plated during a plating process. There is no suggestion in Kubota et al. that a defective portion of the lead frame should be blocked or masked. The mask in Kubota et al. is employed for supporting operative non-plated areas rather than from any concern with blocking

openings through the lead frame substrate. Thus, Kubota et al. would not have suggested covering a wire bond slot that is associated with a defective portion of a substrate.

In view of the foregoing reasons alone, the dependent claims also are patentable over the cited art. Applicant also wishes to point some additional patentable features recited in dependent claims.

For example, claim 12 also states that the cover member comprises a defective die. The cited art does not suggest any of the reasons offered in the Office Action for motivating use of a defective die (i.e., costs savings, support during further processing, and avoiding damage to an adjacent operative area). If the PTO is unable to specifically cite to any such suggestions in the references, it would appear that the rejection of claim 12 is improperly justified based on teachings gleaned from the applicant's own disclosure in the specification.

Claims 13, 14 and new claim 36 are directed to an unexpected result. In particular, applicant has surprisingly found that less than 100% coverage of the wire bond slot still prevents encapsulation material bleeding and, as a further benefit, does not create a negative pressure zone (see page 8, lines 15-21). The PTO states that the subject matter of claims 13 and 14 can be arrived at by trial and error. However, where the results of the claimed invention are surprising it is irrelevant whether or not a claimed invention could be arrived at by trial and error.

It is respectfully submitted that the present claims are in condition for allowance. Should there be any questions regarding this application, Examiner Patel is invited to contact the undersigned attorney at the telephone number shown below.

Respectfully submitted,

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